REMARKS/ARGUMENTS

STATUS OF CLAIMS

In response to the Office Action dated June 1, 2007, claims 2-4, 10 and 11 have been amended, and claims 1, 6 and 9 have been canceled. Claims 2-5, 7, 8, 10 and 11 are now pending in this application. No new matter has been added.

Claims 2 and 3 have been amended to correct minor informalities and provide consistency. The amendments to claims 2 and 3 are non-narrowing claim amendments.

OBJECTION TO CLAIM 4

Claim 4 has been objected for failing to provide antecedent support for "the resistor which is connected to the input stage of the amplifier".

By this response, claim 4 has been amended to recite:

> The switched capacitor as set forth in Claim 2, wherein:
> the resistor is connected to the input stage of the amplifier, and
> the amplifier whose input stage includes the bipolar transistor has an input impedance that is greater than a resistance of the resistor.

When claim 4 is considered with claim 2, from which it depends (i.e., the integration circuit of at least a first stage of the integration circuits of multiple stages has ***a resistor***, and a bipolar transistor is provided in ***an input stage of the amplifier*** in at least one of the integration circuits having the resistor), it is clear that proper antecedent support is provided for all recited elements. Therefore, withdrawal of the objection as to amended claim 4 is respectfully solicited.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 3 and 5-11 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner contends that the recitation "an amplifier which shows a strong 1/f noise reduction effect includes a bipolar transistor" in claim 3 is not definite and that there is no indication as to what the variable "f" is to represent.

The rejections of claims 3, 5, 7, 8, 10 and 11 are respectfully traversed, and the rejections of canceled claims 6 and 9 are moot.

Applicants stress that a patent specification is directed to one having ordinary skill in the art. ***In re Howarth***, 654 F.2d 103, 210 USPQ 689 (CCPA 1981). Accordingly, conventional knowledge is read into this disclosure, relieving Applicants of the burden of disclosing in painstaking detail that which is already known, thereby burdening the Patent and Trademark Office with cumbersome specifications. ***Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.***, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984); ***In re Howarth, supra***.

Such conventional knowledge includes knowledge regarding "1/f noise" and what it is. As an example, the term "1/f noise" was typed into Wikipedia, the free online encyclopedia and the enclosed definition (1) was obtained. From this definition, the term pink noise was then typed in Wikipedia, and the enclosed definition (2) was obtained. By reviewing these documents, and their bibliographies, there can be no doubt that "1/f noise" has been known in the art for sometime. Consequently, a person of ordinary skill in the art to which the invention pertains would understand what is intended by "1/f noise" and that "f" refers to frequency.

With regard to claims 10 and 11, these claims have been amended to delineate:

A digital wireless receiver, wherein comprising:

> the switched capacitor filter of Claim 2 (3) is used for (i) intermediate frequency band section of a digital wireless receiver which uses a low IF system, or (ii) an analog baseband section of a digital wireless communication receiver which uses no intermediate frequency.

The phrase "low-IF system" is used in the present specification (see first full paragraph on page 16) and it a well-know technical term which appears in many websites. That is, typing in "low-IF system" into any search engine (e.g. Google) will provide many websites that use the phrase "low-IF system".

Thus, claims 10 and 11, as amended, recite the invention with the degree of precision and particularity required by the statute.

In view of the above, withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, as to claims 3, 5, 7, 8, 10 and 11, as amended, is respectfully solicited.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 103

I. Claims 1-3 and 6-11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Azuma et al. (Embedded Anti-Aliasing in Switched-Capacitor Ladder Filters With Variable Gain and Offset Compensation, IEEE Journal of Solid-State Circuits, Vol. 37, No. 3, March 2002, Pages 349-356) in view of Bonaccio et al. (U.S. Patent No. 6,034,568). The Examiner contends that Azuma et al. discloses the invention of independent claim 1 except that at least one of the integration circuits includes a bipolar transistor. However, the Examiner maintains that "it is notoriously known in the art that the operational amplifiers of Azuma et al. may be constructed of bipolar or FET". The same reasoning is applied to independent claims 2 and 3.

The rejections of claims 2, 3, 7, 8, 10 and 11 are respectfully traversed, and the rejections of canceled claims 1, 6 and 9 are moot.

The present application is characterized in that, in the switched capacitor filter, the input stage of the amplifier of the integration circuit in which resistors are used has bipolar transistors. This characteristic of a switched capacitor filter is not taught by Azuma et al.

Bonaccio et al. describes at column 5, lines 35-40 that "FET-input operational amplifiers suffer from larger initial offsets and much larger drifts of offset voltage with temperature deviations than do bipolar transistor operational amplifiers". These "bipolar transistor operational amplifiers" are considered as operational amplifiers in which all transistors thereof are bipolar transistors.

In contrast, the switched capacitor filter of the subject application is, as shown in Figs. 1 and 2, arranged such that the transistor on the input stage of the amplifier is a bipolar transistor, whereas the other transistors are FET transistors.

Thus, the inventions recited in independent claims 2 and 3 are different from Bonaccio et al. because the bipolar transistor is provided in an input stage of the amplifier. In addition, the switched capacitor filter of the present application, having a bipolar transistor in an input stage of the amplifier, is more effective than the switched capacitor filter of Azuma et al. when an input signal level is low (see page 21, second paragraph of the specification).

Thus, amended independent claims 2 and 3 are patentable over Azuma et al. and Bonaccio et al., as are claims 7, 8, 10 and 11. Therefore, the allowance of claims 2, 3, 7, 8, 10 and 11, as amended, is respectfully solicited.

II. Claims 4 and 5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Azuma et al. in view of Bonaccio et al., and further in view of Min et al. (U.S. Patent No. 6,515,489). It is noted that item number 7 on page 5 of the Office Action is typed "Claim*** rejected...." It is presumed that the Examiner intended that "Claims 4 and 5 are rejected..."

Claim 4 depends directly from amended claim 2 and claim 5 depends from amended claim 3, and Min et al. does not disclose or suggests that a bipolar transistor is provided in an input stage of the amplifier in at least one of the integration circuits having the resistor (claim 2) and that an input stage of an amplifier which shows a strong 1/f noise reduction effect includes a bipolar transistor (claim 3). Therefore, claims 4 and 5 are patentable over Azuma et al. and Bonaccio et al., even when considered in view of Min et al. Consequently, the allowance of claims 4 and 5 is respectfully solicited.

CONCLUSION

In view of the above amendment, Applicants believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Edward J. Wise (Reg. No. 34,523) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

Date: August 30, 2007

Respectfully submitted,

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